

# UKRAINE'S Shield Of Fire



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**T**he Ukrainian Armed Forces as a whole and Rocket Forces and Artillery in particular have been shaped by a range of decisions. Among them are the Ukraine's decision to have non-nuclear status, adopt a defense-oriented military doctrine and modernize the Armed Forces by analyzing current and future battlefield conditions and comparing weapons developments in neighboring countries.

As a major component of the Ukrainian Ground Forces, the Rocket Forces and Artillery provide a shield of firepower. They include operational-tactical and tactical missile formations; cannon, rocket and antitank artillery formations and units; artillery observers; and mortar and tank-guided missile units.

This article examines the evolution of the Ukraine's Rocket Forces and Artillery through the World Wars as part of the Soviet Union to their composition and operations today. The Ukrainian Rocket Forces and Artillery are a sig-

nificant combat multiplier for the independent nation of the Ukraine.

## Evolution of the Artillery

The history of the birth of Ukrainian artillery extends back to ancient times. The first references to the use of cannons in Kievan Rus date back to the 1382. Thus, one may consider the 14th century as the beginning of Ukraine's artillery history.

Ukrainian artillery first developed as fortress and, then later, field cannons. The Ukrainian Army headed by Bohdan Khmelnytsky had a fairly large artillery force. Artillery played a key role as part of the Ukrainian-Galician Army during the liberation war of the Ukrainian People's Republic.

**World War I.** Artillery proved to be one of the major means of warfare during World War I's extensive static defense warfare. Breaking through defenses was only possible with concen-

trations of heavy artillery fire. During World War I, infantry losses due to artillery reached 75 percent, outnumbering casualties due to rifle and machinegun fire by three times. The experience of World War I demonstrated that a sudden and massive artillery preparation and massive fires attack in support of the main effort was an effective way of employing artillery.

At that time, artillery observation took a significant step forward. New observation means were introduced, including artillery observation aircraft and special equipment. The Soviet Union's artillery was the first to use audiometric stations in battle.

**World War II.** Soviet artillery met expectations on the battlefields of World War II in the fight for the freedom and independence of the Soviet homeland. In 1942, it acquired the nickname of "The God of War" and gave the Soviets a dramatic advantage over the German and Japanese army artilleries in terms of both numbers of cannons, mortars and rocket artillery engaged in operations and in artillery direction and observation. With the goal of employing artillery most effectively in all combat conditions, the Soviet Union improved the organizational structure of its Rocket Forces and Artillery and, as much as the country could afford, increased the numbers of pieces on the battlefield.

By the end of the Second World War, the artillery of a Soviet rifle division was more powerful than that of other countries. For example, the number of Soviet antitank artillery pieces in the division was four times the number of German pieces, three times the number of American, four and one-half times more than the Japanese and only slightly behind the British.

The artillery was organized into the Operational Artillery (battalion, regiment, division, army and front) and reserve artillery, the latter under the command of the Reserve Commander-in-Chief (CINC). Field Artillery developments entailed improving capabilities for conducting fire missions independent of maneuver forces and operating jointly with motorized and armored units to conduct antitank defense and counterbattery operations.

The Reserve Artillery included different types of artillery: rocket, self-propelled and antitank, which were better

developed than cannon artillery. During the war, the Reserve Artillery improved both qualitatively and quantitatively. The number of mortars increased by 17 times, and the number of guns and howitzers increased more than fivefold. This underscored the importance placed on the role of the artillery in combat.

In 1943, the creation of artillery "breakthrough" divisions and corps increased the artillery's abilities to mass fire and maneuver in combat as well as improved its organization. Thus, the Soviet artillery structure was not stagnant. Rather, it constantly changed and improved to provide the most effective employment of the God of War.

During the Great Patriotic War (World War II), new techniques of moving artillery and massing fires were introduced in support of the main effort in the attack. At the same time, the range of artillery weapons surpassed all others in the history of war.

Artillery movements and fire-massing capabilities outgrew the tactical level and were used at the operational and even strategic levels. For example, in June 1944, the 7th Artillery Division moved rapidly from the Ukraine to Karelia, a distance of nearly 2,000 kilometers. Then, in five days, the division redeployed for the Yask-Chisinau operation. On another occasion during the Berlin operation, the artillery of the 1st Ukrainian Front moved to the Teltov Channel within 25 hours—a distance of some 180 kilometers.

The artillery employment principle of massing fires decisively is best achieved by increasing the density of artillery in both offensive and defensive operations. In 1945, the operational density of artillery in breakthrough zones had increased to 200 to 300 guns, howitzers, mortars and rocket artillery pieces for every kilometer of front; this is compared to 70 to 80 pieces per kilometer in 1941. The creation of large artillery units (corps and divisions), the use of long-distance movements and large-scale massing of fires promoted artillery from a tactical to an operational tool.

The Soviet's basic principles of artillery

employment in battle were the most advanced at the time and further improved during World War II. For example, experience demonstrated the effectiveness of task organizing artillery groups based on the mission and maneuver organization.

The "artillery attack" was developed as a form of target destruction. The effective range of an artillery preparation increased from six to eight kilometers in 1944 to eight to 12 kilometers in 1945.

Artillery support during the majority of operations was by double volley (linear sheaf) fire and a combination single volley (linear sheaf) with concentrated converged sheaf. The range of artillery support corresponded to the depth of the enemy's first-echelon regiments.

During the war, the artillery received high marks in battle from the Supreme High Command. More than 2,100 artillery units received awards for actions in World War II with approximately 1,200 units given the designation of "Honor" and 137 redesignated "Guards" units. The artillery's success was due to the high moral and professional qualities of its personnel—more than one million awards and medals were given to artillerymen. Of those, 1,800 soldiers, officers and generals received the highest decoration "Hero of the Soviet Union," and two of them, Major Petrov V. S. and Lieutenant Shylin A. P., received the decoration twice.

**Post World Wars.** The postwar period is known for rapid science and technological developments and the introduction of nuclear weapons. A new branch of the Ground Forces was created: Rocket Forces and Artillery. Certain artillery units were reequipped with

rocket and missile systems and transferred to the Strategic Rocket Forces—a new branch of the Armed Forces.

The emergence of nuclear missiles led to a reconsideration of the roles and missions of conventional weapons. In the mid-50s, this meant downsizing the artillery. However, in the beginning of the 60s, the artillery started to regain significance as a means of destroying smaller sized targets, providing protective fires and engaging targets close to the opposition forces.

In the postwar years, Soviet artillery developments were based on experiences in the Great Patriotic War and the achievements of science and technology. The artillery fielded new guns, howitzers, rocket and antitank systems, mountain cannons, mortars, modern reconnaissance and fire control means and computer systems. Artillery systems' performance improved significantly in terms of range, munitions effectiveness, rate-of-fire and precision. Artillery also fielded self-propelled systems, which improved its maneuverability and survivability.

The adoption of new armament and equipment and changes in the nature of warfare called for new tactics and techniques for the Rocket Forces and Artillery firing and fire direction and forward observation. Rocket Forces personnel and artillerymen were quite successful in developing them.

## Today's Firepower Shield

The early 1990s featured the collapse of the Soviet Union and the emergence of the new state of the Ukraine, which declared its independence 24 August 1991. The Ukraine is one of the largest countries in Europe with a population of 52 million people. Its land area is 603,700 square kilometers with a water surface area exceeding 20,000 square kilometers. The Ukraine shares 7,569 kilometers of borders with Russia, Belarus, Poland, Slovak Republic, Hungary, Romania and Moldova.

The Ukraine is a democratic republic headed by



During World War II, Soviet soldiers wrestle a 76.2-mm field gun across the Oder River about 50 miles from Berlin. The First Ukrainian Front beat the First Belorussian Front to Berlin by nine days.

the President, who is also the Commander-in-Chief of the Armed Forces. Legislative power belongs to the one-chamber Supreme Rada (Parliament) while executive power rests with the Cabinet of Ministers.

**Equipment.** The Rocket Forces and Artillery units deployed in Ukraine's territory after the Soviet Union dissolved became Ukrainian.

The Ground Forces retained operational-tactical and tactical missiles, multiple rocket launchers (MRLs), self-propelled and towed artillery of various calibers, anti-tank systems (including antitank missiles) and other systems.

The operational-tactical and tactical rocket systems *Skad* and *Tochka* (with ranges of 300 and 120 kilometers, respectively) feature high precision volumes of fire. They can fire in any weather or geographical condition from both prepared and unprepared launch sites as well as from the march to engage planned and unplanned targets.

The MRL systems *Smerch*, *Uragan* and *Grad* are designed to destroy concentrations of personnel and various vehicles at distances up to 70 kilometers. They can remotely launch mines, and carry guided and unguided demolition, fougasse (including cluster) and incendiary munitions. These systems are highly mobile and can provide significant firepower.

The most common systems—*Giatsint*, *Akatsiya* and *Gvozdika*—are manufactured both as self-propelled and towed models and provide fire support for army units and accomplish various independent missions.

Antitank artillery means are used for engaging tanks and other armored targets. With its radar target location system, the antitank cannon *Rapira* can fire long ranges at night.

The self-propelled antitank guided rocket systems *Sturm* and *Konkurs* have an accuracy rating of 0.9 (probable error of 0.1) and can hit specified targets at five kilometers.

**Training.** High-quality training has always been key to the artillery's combat readiness and success in military operations. The Ukrainian Rocket Force and Artillery training system provides comprehensive training for commanders' staff and personnel and ensures the Armed Forces will be able to employ



Built in 1974, the *Uragan* multiple rocket launcher (MRL) was designed to destroy targets up to 35 kilometers away.

the might of rocket and artillery in divisions, battalions and other units.

Officer professional qualifications are vital. A high level of Rocket Forces and Artillery officers' expertise is a major criteria for combat readiness in the branch. During commanders' meetings, classes and exercises, officers improve their skills in managing rocket attacks and artillery fire to fulfill their duties of engaging the enemy with fires.

The bulk of Rocket Forces and Artillery training consists of practical field exercises. Up to 50 percent of the Rocket Forces and Artillery's training time is spent conducting field exercises at training areas and centers.

During tactical exercises, Rocket Forces and Artillery units practice combined arms training with mechanized, armored and aviation units to execute timely and efficient attacks. An attack is usually carried out using the three-part formula of "observe—compute firing data—fire." Radar and audio and optical observation devices define coordinates and the types of targets and pass this information to fire direction posts to compute the firing data. The data then is given to firing units to engage the targets.

It is well-known that Rocket Forces and Artillery training was of fairly high quality in the Soviet Union. Training was provided by seven schools, three of which were located in the Ukraine. In all, the Ukraine inherited 34 military schools and 73 military faculties devoted to civil educational institutions after the collapse of the Soviet Union. Annual output of personnel from these institutions would greatly exceeded the Ukrainian Armed Forces' demand.

On the other hand, the Ukraine lacked military schools that trained rocket specialists and munitions and supply personnel for Rocket Forces and Artillery units. Furthermore, nearly all the man-

aging directorates of the military education system remained outside the Ukraine. The system required substantial review and reorganization.

The Ukraine's creating a military education system with a network of institutions and corresponding regulations and management structures was a major challenge. In addition, this new education system had to be integrated with the existing state structures. This integrated educational system trains experts for the Ukrainian

Rocket Forces and Artillery at all stages from basic military training up to the operational-strategic level.

The Ukraine's announcement of its nuclear-free and non-block status and its becoming a party to the Conventional Forces in Europe Treaty (CFE) became the impetus to restructure the Ukrainian Armed Forces. Among other things, the Rocket Forces and Artillery were reorganized to reflect the defensive character of the Ukraine's military doctrine and the principle of defensive sufficiency.

In times of peace, Rocket Forces and Artillery personnel of the Ukrainian Armed Forces focus on improving their military skills and knowledge as well as developing high morals and pride in serving their newly independent country.

In times of war, the Rocket Forces and Artillery surely would be the Ukraine's Shield of Fire.



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